

Crystal Data: Monoclinic. *Point Group:* $2/m$. As irregular aggregates to 3 mm.

Physical Properties: *Fracture:* n.d. *Tenacity:* Brittle. Hardness = 4 D(meas.) = n.d.
D(calc.) = 4.13

Optical Properties: Opaque. *Color:* Black; opaque to dark brown in thin sections, gray with a brownish tint in reflected light. *Streak:* n.d. *Luster:* Metallic. Low to moderate birefractivity; distinct anisotropy.
R₁-R₂: n.d.

Cell Data: *Space Group:* $I2/a$. $a = 11.888(2)$ $b = 6.409(1)$ $c = 9.804(2)$ $\beta = 106.17(3)^\circ$ $Z = 8$

X-ray Powder Pattern: Helikon II pegmatite, Karibib, Namibia.
2.819 (10), 3.077 (8), 3.209 (6), 2.082 (5), 1.787 (5), 1.495 (5), 2.184 (4)

Chemistry:	(1)	(2)
Na ₂ O	0.22	
MgO	0.43	
Al ₂ O ₃	0.03	
P ₂ O ₅	29.97	32.14
K ₂ O	0.15	
CaO	0.02	
MnO	31.14	32.12
Mn ₂ O ₃	22.80	35.74
<u>Fe₂O₃</u>	<u>12.86</u>	<u> </u>
Total	97.62	100.00

(1) Helikon II pegmatite, Karibib, Namibia; by electron microprobe, corresponding to $(\text{Mn}^{2+}_{1.00}\text{Mn}^{3+}_{0.64}\text{Fe}^{3+}_{0.36})_{\Sigma=2.00}(\text{P}_{0.98}\text{O}_4)\text{O}$. (2) $\text{Mn}^{2+}\text{Mn}^{3+}\text{O}(\text{PO}_4)$.

Occurrence: From the alteration of oxidized sicklerite in a granitic rare-element pegmatite.

Association: Lithiophilite, sicklerite, eosphorite, amblygonite, varulite, dickinsonite, hureaulite, apatite, unidentified Fe/Mn oxides.

Distribution: From the Helikon II pegmatite, Karibib, Namibia.

Name: Honors Mrs. Charlotte Jooste (1920-2009), Karibib, Namibia, for her support of pegmatite research in Central Namibia.

Type Material: University of Stuttgart, Germany; Museum of Natural History, Toulouse, France, and the Department de Mineralogy and Petrology, University of the Basque Country, Bilbao, Spain.

References: (1) Keller, P., F. Fontan, F. Velasco Roldán, and P. de Parseval (2007) Joosteite, $\text{Mn}^{2+}(\text{Mn}^{3+}, \text{Fe}^{3+})(\text{PO}_4)\text{O}$: a new phosphate mineral from the Helikon II Mine, Karibib, Namibia. *Neues Jb. Mineral. Abh.*, 183, 197-201. (2) Keller, P., F. Lissner, and T. Schleid (2007) The crystal structure of joosteite, $(\text{Mn}^{2+}, \text{Mn}^{3+}, \text{Fe}^{3+})_2[\text{PO}_4]\text{O}$, from the Helikon II Mine, Karibib (Namibia), and its relationship to staněkite, $(\text{Fe}^{3+}, \text{Mn}^{2+}, \text{Fe}^{2+}, \text{Mg})_2[\text{PO}_4]\text{O}$. *Neues Jb. Mineral. Abh.*, 184, 225-230. (3) (2008) *Amer. Mineral.*, 93(11), 1945 (abs. ref. 1).